

2021 Washington State Energy Strategy

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OCTOBER 14, 2021

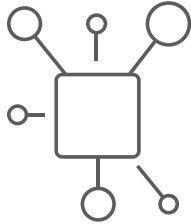


Washington State
Department of
Commerce

We strengthen communities



**HOUSING
HOMELESSNESS**



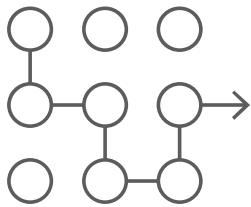
INFRASTRUCTURE



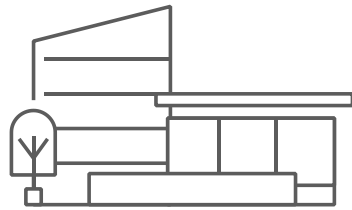
**BUSINESS
ASSISTANCE**



ENERGY



PLANNING



COMMUNITY FACILITIES



**CRIME VICTIMS &
PUBLIC SAFETY**



**COMMUNITY
SERVICES**

Specific Directives in 2019 Legislation

- Align strategy with clean electricity laws
 - Energy Independence Act (I-937, 2006)
 - Clean Energy Transformation Act (SB 5611, 2019)
 - After 2025, no coal in resource mix
 - By 2030, greenhouse neutral electricity supply
 - By 2045, 100% renewable or non-emitting sources
- Align strategy with greenhouse gas emissions limits (HB 2311, 2020)
 - By 2030, 45% below 1990 levels
 - By 2040, 75% below 1990 levels
 - By 2050, 95% below 1990 levels and achieve net-zero emissions.

Cross-Sector Considerations

- Maintaining reasonable and fair **prices** and sufficient **supply** of energy
- Promoting a competitive clean energy **economy** and **workforce** development
- Understanding and addressing the needs of **low-income and vulnerable populations**
- Reaching and responding to both **urban and rural communities**



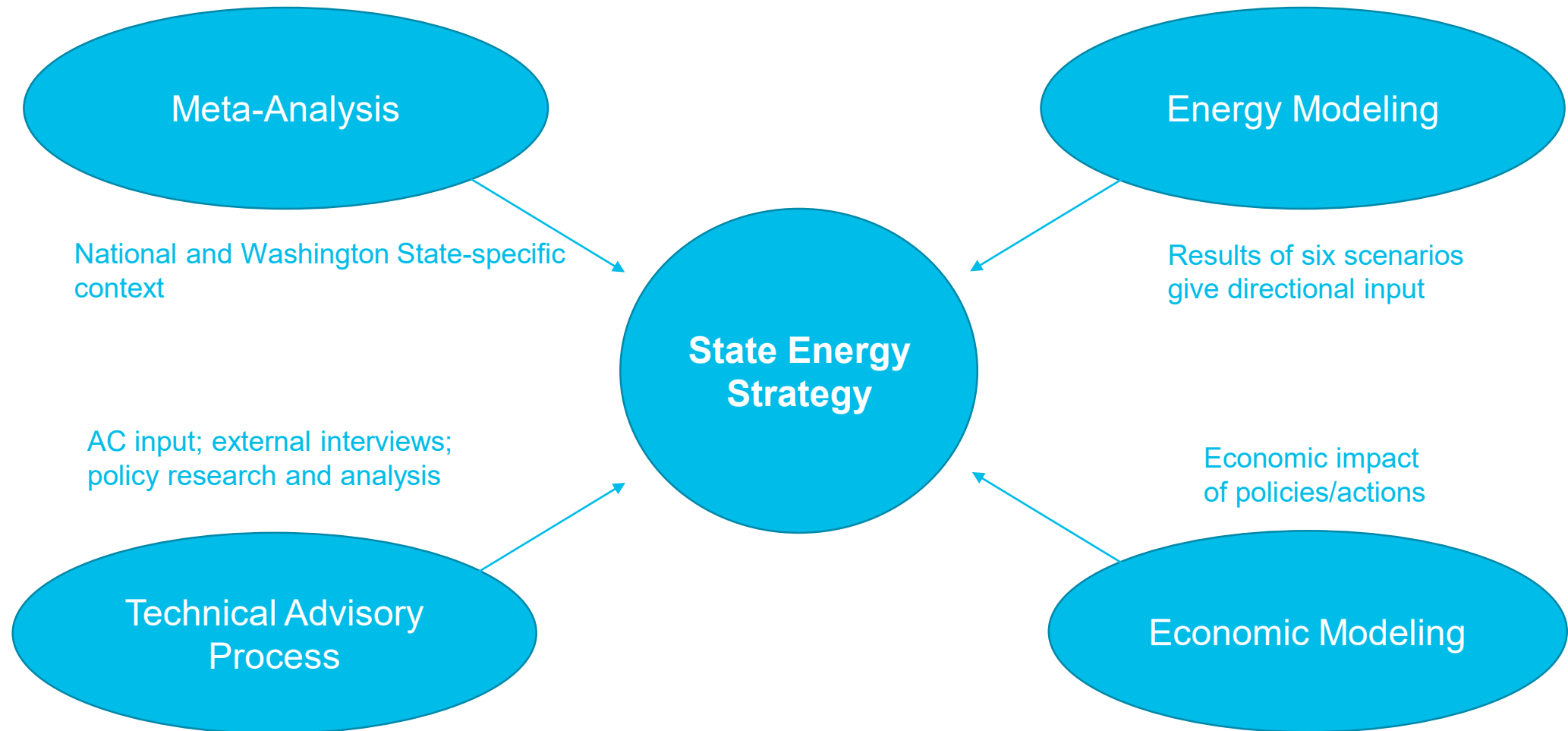
27-Member Advisory Committee

- **Legislators**
 - Sen. Reuven Carlyle
 - Sen. Tim Sheldon
 - Rep. Alex Ybarra
 - Rep. Alex Ramel
- **Government**
 - UTC
 - EFSEC
 - NW Power Council
 - Cities
 - Counties
- **Energy Providers**
 - Private utilities
 - Municipal utilities
 - Public utility districts
 - Natural gas distributors
 - Natural gas pipelines
 - Rural electric co-ops
 - Petroleum suppliers
 - Independent power
 - Clean energy industry
- **Energy Consumers**
 - Industrial
 - Commercial
 - Agricultural
- **Stakeholders**
 - Indian tribes
 - Labor
 - Civic organization
 - Vulnerable populations
 - Environment (2)



Energy Strategy Approach

State Energy Strategy Development



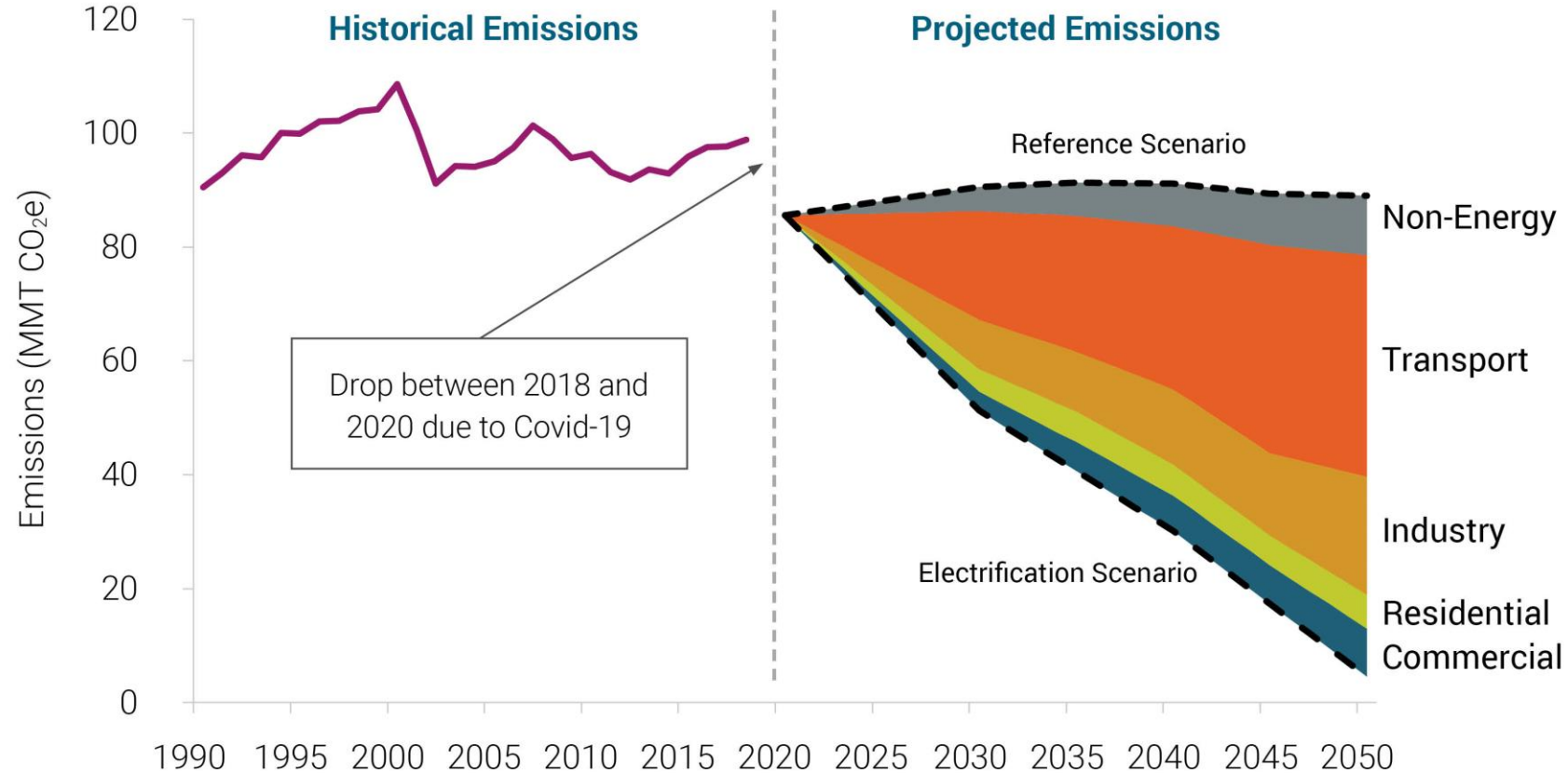
Transforming Washington's Energy System

- Washington State's Priorities
 - Equity, affordability, reliability, competitiveness
- Building on a foundation of past studies and efforts in other states
- Transformational rather than incremental change
- Aggressive action required across all energy sectors

Washington State Emission Targets:

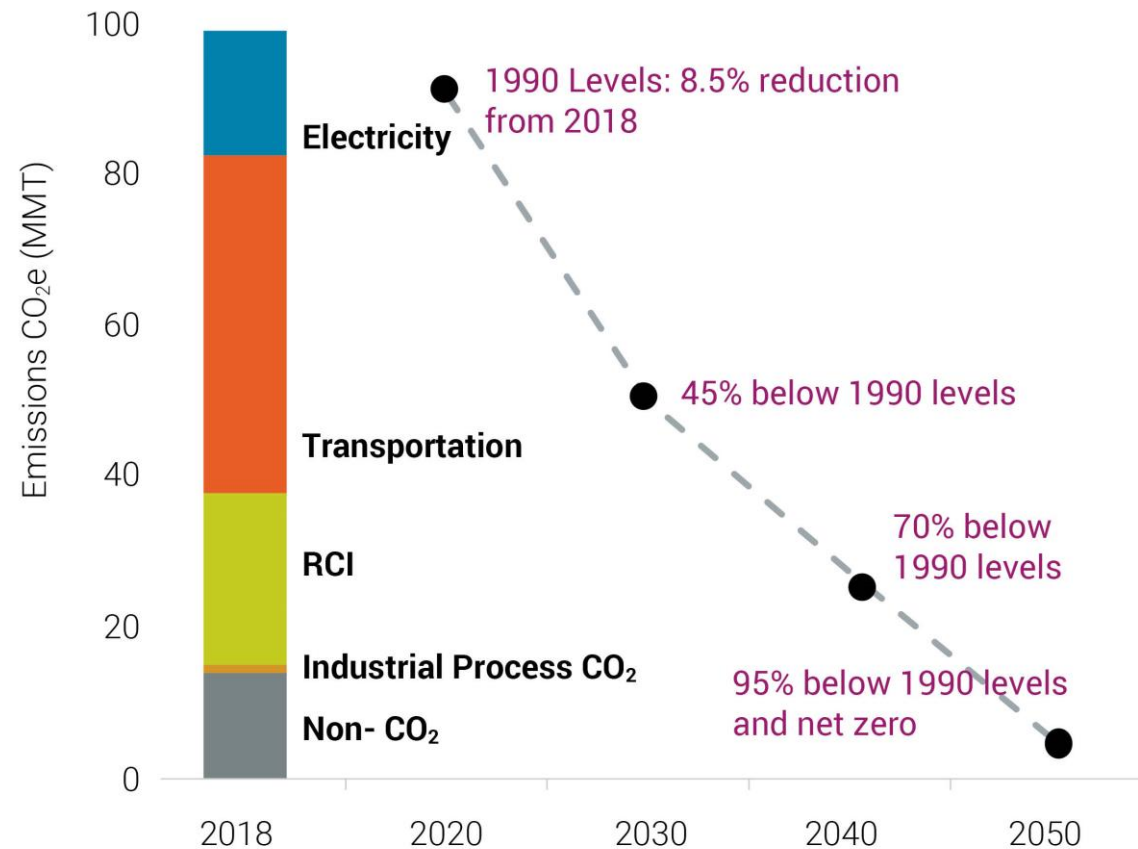
- **2020: 1990 levels**
- **2030: 45% below 1990 2040: 70% below 1990**
- **2050: 95% below 1990**
- **2050: Net zero**

Historical and Projected GHG Emissions



Source: Washington State Department of Ecology for historical emissions (2018 value is preliminary).
Appendix A – Deep Decarbonization Pathways Modeling Technical Report, December 11, 2020 (p. 26).

Meeting State Emissions Reduction Limits



Source: Washington State Department of Ecology and Washington State.

Appendix A –Deep Decarbonization Pathways Modeling Technical Report, December 11, 2020 (p. 15).

Key Strategies



Implications for Washington State

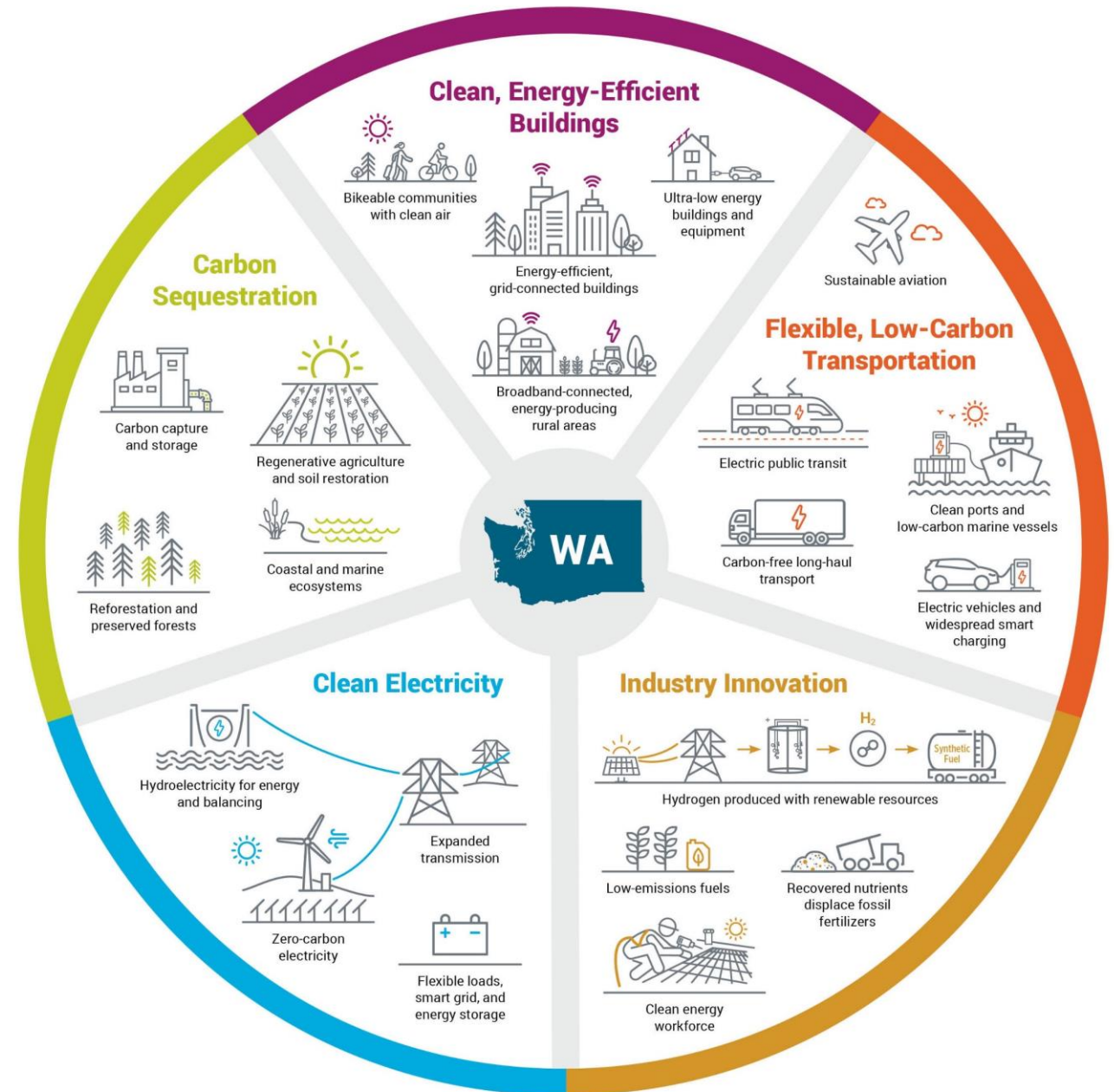
To meet the state's 2030 GHG Targets

- Deep energy efficiency to reduce energy use
- Clean electricity grid by 2030
- Electrifying as many energy end uses as practical
- Accelerating clean fuels industry critical
- Regional approach required

WASHINGTON STATE 2050

Net-Zero Vision

A blueprint for how we can meet our state's climate goals to nearly eliminate the use of climate-threatening fossil fuels by 2050, while growing a prosperous economy and maintaining affordable and reliable energy supplies.

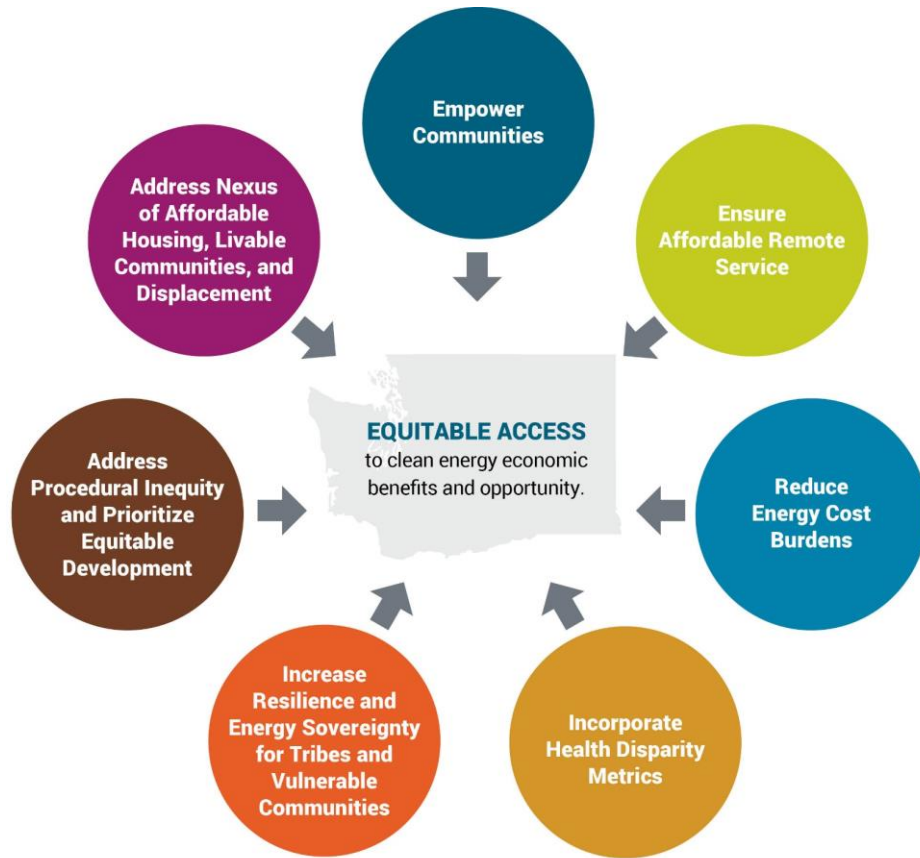


Overarching Requirements



- Planning, data analysis and outreach
- Research, development, early deployment of clean technologies
- Investment to ensure equitable and inclusive transition
- Transition the fossil natural gas industry
- Develop clean fuels industry
- Comprehensive pricing mechanisms

Ensure Equitable Transition for Communities



- Apply explicit equity principles
- Ensure impacted communities design solutions
- Invest in equitable and inclusive transition
- Support workers in transition
- Universal broadband access as foundation for transition

Source: Washington State Department of Commerce

100% Clean Electricity, Smart Grid Power Transition



- Enhance reliability and resource adequacy of the electricity grid
- Accelerate new renewables and transmission expansion
- Deploy flexible solutions and smart grid technology to manage load
- Develop market mechanisms for clean power
- Ensure effective implementation of the Clean Energy Transformation Act

Clean Electricity

97%

growth in electricity end use demand over 2020 levels by 2050



43%

of electricity imported by 2050



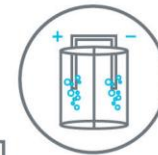
36%

from WY & MT wind



100%

renewable/non-emitting electricity by 2045



19%

of total electricity demand from electric boilers and electrolysis by 2050

Clean Fuels Required to Reach Decarbonization

- All liquid fuels fully decarbonized by 2050
- Decreasing fuel consumption over time with electrification and efficiency
- Liquid fuels (gasoline, diesel, jet fuel, others) significantly decarbonized by 2030 with synthetic and biofuels
 - Significant growth in clean fuels industries with few current commercial operations; major challenge
- Emerging opportunities for hydrogen solutions



Decarbonizing the Industrial Sector

1% improvement
in efficiency per year through **2050**



⚡ Fuel switching to electricity by 2050 in:

50% 
of process heating

100% 
of machine drives

75%  
of building heating
and cooling

GHG EMISSION
REDUCTIONS



19
MMT

2020

11
MMT

2030

0
MMT

2050

- Washington's significant demand for clean fuel requires an investment in clean fuels industry
- Large quantities of synthetic fuels required in 2030 to reach the target of 45% below 1990 emissions by 2045
 - ✓ New industrial flexible loads major emerging industry for producing hydrogen through electrolysis
- Significant fraction of carbon stream used to produce synthetic fuels comes from industrial carbon capture

Partners



Businesses



**Educational
Institutions**



**Local
Governments**



**Frontline
Organizations**



**State
Agencies**



Tribes



Utilities

Resources

- **Website:** commerce.wa.gov/energystrategy
- **Subject matter leads**
 - [Michael Breish](#) – transportation
 - [Liz Reichart](#) – energy efficiency and the built environment
 - [Emily Salzberg](#) – buildings
 - [Sarah Vorpahl](#) – equity, electricity
 - [Glenn Blackmon](#) – modeling, industry, natural gas
 - [Austin Scharff](#) – workforce
 - [Peter Moulton](#) – fuels

Thank you!

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